

REMARKS

In the Office Action, the Examiner noted that two claims were numbered 23 and that no claim 24 was present. Applicants have renumbered the claims to correct this typographical error. Thus, claims 1-36 are pending in the present application. Applicants request that the Examiner's objection to the second claimed numbered "claim 23" be withdrawn.

In the Office Action, claims 31 and 36 were rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. In particular, the Examiner alleges that the limitation "the plurality of orientation sensors" lacks sufficient antecedent basis. Claims 31 and 36 have been amended to correct this typographical error solely to render these claims definite. The claims have in no way been narrowed by virtue of these amendments and so these amendments should not be interpreted as narrowing the claimed invention for purposes of any determination under the doctrine of equivalents. Applicant respectfully requests that the Examiner's rejections of claims 31 and 36 under 35 U.S.C. § 112, second paragraph, be withdrawn.

In the Office Action, claims 1-4, 7, 9, 13-17, 19-24, 26, 28-29, 31, 33-34, and 36 were rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by Bittleston (U.S. Patent Application Publication No. 2002/0126575). The Examiner's rejections are respectfully traversed.

Bittleston describes a control system 26 for a bird 10 that may be coupled to a seismic streamer 14. The control system 26 may receive a signal representative of a roll angle of the bird 10 from an inclinometer 42. See Bittleston, col. 3, paragraph [0028]. However, Bittleston is only concerned with seismic streamer is that may be towed behind a seismic survey vessel at a depth

of approximately 10 meters. See Bittleston, col. 1, paragraphs [0002-0003] Accordingly, Bittleston is completely silent with regard to ocean-bottom cables. For at least this reason, Applicants respectfully submit that the present invention is not anticipated by Bittleston and request that the Examiner's rejections of claims 1-4, 7, 9, 13-17, 19-24, 26, 28-29, 31, 33-34, and 36 under 35 U.S.C. 102(e) be withdrawn.

In the Office Action, claims 1-4, 7, 9-10, 12-14, 16-17, 19-24, 28-29, 31, 33-34, and 36 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over the Partridge publication in view of the Entralgo publication. Claims 8 and 32 were rejected under 35 U.S.C. 103(a) as allegedly being obvious over the Partridge publication in view of the Entralgo publication and further in view of Seriff (U.S. Patent No. 4,942,557). Claims 11 and 27 were rejected under 35 U.S.C. 103(a) as allegedly being obvious over the Partridge publication in view of the Entralgo publication and further in view of Stephen (U.S. Patent No. 6,430,105). Claims 15 and 26 were rejected under 35 U.S.C. 103(a) as allegedly being obvious over the Partridge publication in view of the Entralgo publication and further in view of Bary (U.S. Patent Publication No. 2003/0117893). The Examiner's rejections are respectfully traversed.

To establish a *prima facie* case of obviousness, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (CCPA 1974). Applicants respectfully submit that the Partridge and Entralgo publications, as well as the secondary references Seriff, Stephen, and Bary, fail to teach or suggest all of the limitations of independent claims 1, 16, 28, and 33.

Partridge describes a technique for ocean-bottom cable surveying. In the technique described by Partridge, the ocean-bottom cable is deployed on an ocean bottom. Groups of transponders are coupled to the cable and may be sequentially interrogated by a surface

transceiver, which determines a range from the survey vessel to the transponder using two-way travel times. The range observations are processed into transponder positions using a standard extended Kalman filter. See Partridge, pages 2-4. Entralgo similarly describes using acoustic transponders attached to ocean-bottom cables to determine positions and orientations of the ocean-bottom cables based on ranging positions of the acoustic transponders.

However, Partridge and Entralgo are completely silent with regard to determining inclinations of orientation sensors. Accordingly, neither Partridge nor Entralgo teach or suggest determining at least one initial inclination of at least one orientation sensor coupled to at least one ocean bottom cable. Partridge and Entralgo also fail to teach or suggest determining at least one current inclination of the at least one orientation sensor. Furthermore, Partridge and Entralgo fail to teach or suggest determining whether the at least one ocean bottom cable has moved using the at least one initial inclination and the at least one current inclination.

The Examiner relies upon Serif to describe allowing a cable to settle so that it is properly coupled to an ocean-bottom to ensure that noise transients have been attenuated, Stephen to describe a seismic sensor apparatus having a plurality of orientation units, and Bary to describe an inclinometer. However, none of these secondary references remedy the fundamental deficiencies of Partridge and Entralgo.

For at least the aforementioned reasons, Applicants respectfully submit that the Examiner has failed to make a *prima facie* case at the present invention is obvious over the prior art to record. Applicants request that the Examiner's rejections of claims 1-4, 7, 9-10, 12-14, 16-17, 19-24, 28-29, 31, 33-34, and 36 under 35 U.S.C. 103(a) be withdrawn.


In the Office Action, the Examiner indicated that claims 5, 18, 25, 30, and 35 contain allowable subject matter but that these claims were objected to as being dependent upon a

rejected base claim. Pursuant to the above amendments and arguments, Applicants respectfully submit that claims 5, 18, 25, 30, and 35 are in condition for allowance. The Examiner provided no indication in the Detailed Action as to the disposition of claim 6. However, since claim 6 depends from claim 5, Applicants submit that claim 6 is in condition for allowance for at least the same reasons as claim 5.

For the aforementioned reasons, it is respectfully submitted that all claims pending in the present application are in condition for allowance. The Examiner is invited to contact the undersigned at (713) 934-4052 with any questions, comments or suggestions relating to the referenced patent application.

Respectfully submitted,

Date: 5/23/05


Mark W. Sincell, Ph.D.
Reg. No. 52,226
Williams Morgan & Amerson, P.C.
10333 Richmond Avenue, Suite 1100
Houston, TX 77042
(713) 934-7000
(713) 934-7011 (Fax)

AGENT FOR APPLICANTS